

DETAILED ACTION

Drawings

Figures 8-9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The amendment filed 08/24/2011 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Figure 10 along with description for figure 10 appears to be new matter. The figure includes specific details, positioning and dimensioning which was not originally disclosed. The specification's description for figure 10 appears to imply that figure 10 is prior art however there is no specific patent cited as evidence to support that it is prior art. Furthermore, Applicant has claims directed to specifics contained in figure 10 which implies that figure 10 is not prior art. Therefore, if applicant intends figure 10 to be

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considered Prior art, evidence (i.e. a patent document) should be cited in order to clearly support this.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, 12, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2002-239967 in view of Miyasaka et al. and further in view of Gutknecht (USP 4932313).

Regarding claim 1, JP '967 discloses an industrial robot having a joint (fig.1), wherein the joint includes a first member (18), and a second member (20) rotatable relative to the first member, wherein the first member includes a first hole (24) provided in the first member, a first positioning member (26) and a first attaching part (27) that fixes the first positioning member at a bottom of the first hole, wherein the second member includes a contacting portion (29, 30) arranged to contact the first positioning member when the first positioning member is projected from the first hole (30).

JP '967 fails to disclose the first positioning member is contained in the first hole, and the first positioning member being projectable from the first hole.

Miyasaka et al. teaches an origin adjustment device which comprises a first positioning member (37) which is contained in a first hole (see fig.6) and being projectable from the first hole (evident from figure 6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the first positioning member disclosed by JP '967 and provide for the first positioning member to be contained in the first hole and to be projectable from the first hole. Such a modification would yield the predictable result of reducing the chance of incidental contact between the positioning member and the contacting portion which results in a safer device. Furthermore, this modification would provide ease of assembly and use since the positioning member would not have to be removed from the device after each use.

JP '967 also fails to further disclose the first positioning member includes a retainer of a lubricant on a side thereof.

Gutknecht teaches the concept of placing a retainer (38) of a lubricant on a side of a sliding positioning member (31) for the purpose of facilitating the lubrication of the adjacent wall which the member contacts and preventing the member from scraping said wall thereby increasing the durability of the sliding contact.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the positioning member disclosed by JP '967 to include a retainer of lubricant as taught by Gutknecht for the purpose of facilitating the lubrication of the adjacent wall which the member contacts and preventing the member from scraping said wall thereby increasing the durability of the sliding contact.

Regarding claim 5, JP '967 discloses wherein the contacting portion is a projection on a side of the second member (see fig.1), and wherein the projection is formed at a position where the projection can contact the first positioning member when the first positioning member is projected (see fig.3).

Regarding claim 12, JP '967 discloses the first positioning member contacts the contacting portion at a position of a mechanical origin of the joint (see fig.3).

Regarding claim 24, JP '957 in view of Miyasaka disclose the first positioning member is mounted within the first hole so as to be movable between a position in which an entirety of the first positioning member is arranged within the first hole, and a position in which the first positioning member projects from the first hole, while remaining fixed at the bottom of the first hole by the first attaching member (as evident via the teaching of Miyasaka, the positioning member would be capable of assuming both an extended and fully retracted position).

Claims 2, 4, 9, 15, 21, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2002-239967 in view of Miyasaka et al. and further in view of Terzian et al. (USP 3648408).

Regarding claim 2, JP '967 discloses an industrial robot having a joint (fig.1), wherein the joint includes a first member (18), and a second member (20) rotatable relative to the first member, wherein the first member includes a first hole (24) provided in the first member, a first positioning member (26) and a first attaching part (27) that fixes the first positioning member at a bottom of the first hole, wherein the second

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member includes a contacting portion (29,30) arranged to contact the first positioning member when the first positioning member is projected from the first hole (30).

JP '967 fails to disclose the first positioning member is contained in the first hole, and the first positioning member being projectable from the first hole.

Miyasaka et al. teaches an origin adjustment device which comprises a first positioning member (37) which is contained in a first hole (see fig.6) and being projectable from the first hole (evident from figure 6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the first positioning member disclosed by JP '967 and provide for the first positioning member to be contained in the first hole and to be projectable from the first hole. Such a modification would yield the predictable result of reducing the chance of incidental contact between the positioning member and the contacting portion which results in a safer device. Furthermore, this modification would provide ease of assembly and use since the positioning member would not have to be removed from the device after each use.

JP '967 also does not explicitly disclose wherein the first positioning member includes a first marker on a side thereof, and the first marker specifically indicates a projection length of the first positioning member.

Terzian et al. teaches the concept of using a marker (col.3, lines 39-40) on a positioning member (cam drum) in order to indicate a starting position of the cam drum.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the positioning member disclosed by JP '967 to

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include a marker as taught by Terzian et al. for the purpose of indicating the starting position of the positioning member or in other words for indicating the position at which it is projected from hole. The use of indicia for indicating positions and lengths is old and well-known and it would be within the level of ordinary skill in the art to make use of them.

Regarding claim 4, JP '967 in view of Terzian et al. fail to explicitly disclose the first marker is a ring-shaped groove. However it would have been an obvious matter of design choice to one having ordinary skill in the art at the time of the invention to make use of a ring shaped groove as a marker since different forms of indicia would perform the same function of indicating the position of the position member.

Regarding claim 9, JP'967 in view of Terzian et al. as applied in claim 4, disclose the ring-shaped groove is configured to retain a lubricant (the groove would be capable of retaining lubricant).

Regarding claim 15, JP '967 discloses wherein the contacting portion is a projection on a side of the second member (see fig.1), and wherein the projection is formed at a position where the projection can contact the first positioning member when the first positioning member is projected (see fig.3).

Regarding claim 21, JP '967 discloses the first positioning member contacts the contacting portion at a position of a mechanical origin of the joint (see fig.3).

Regarding claim 25, JP '957 in view of Miyasaka disclose the first positioning member is mounted within the first hole so as to be movable between a position in which an entirety of the first positioning member is arranged within the first hole, and a

position in which the first positioning member projects from the first hole, while remaining fixed at the bottom of the first hole by the first attaching member (as evident via the teaching of Miyasaka, the positioning member would be capable of assuming both an extended and fully retracted position).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP2002-239967 in view of Miyasaka et al. and further in view of Gutknecht (USP 4932313), as applied to claim 1 above, and further in view of Morawski (DE 29717628 U).

Regarding claim 11, JP '967 in view of Miyasaka et al. teaches wherein the entire first positioning member is contained in the first hole.

JP '967 in view of Miyasaka et al. teaches fails to explicitly disclose the condition that the first positioning member is contained in the first hole when the joint performs a regular action, and the first positioning member is projected from the first hole when the joint performs origin adjustment.

Morawski teaches the concept of using a positioning member (14') which is entirely contained in a first hole (see fig.2) when a joint performs a regular action and the positioning member is projected from the first hole when the joint performs origin adjustment.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the robot arm disclosed by JP'967 in view of Miyasaka et al. so that the positioning member would project only during origin adjustment, as taught by Morawski in order to provide the predictable result of

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simplifying the alignment process by avoiding the need to assemble and disassemble the positioning member to the robot arm.

Claims 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2002-239967 in view of Miyasaka et al. and further in view of Gutknecht (USP 4932313), as applied to claim 1 above, and further in view of Souji et al. (USP 4980839).

Regarding claim 13, JP '967 discloses wherein the first positioning member contacts the contacting portion at a position displaced by a given angle from a position of a mechanical origin of the joint (see figures).

JP '967 fails to disclose a calculator, and wherein the calculator calculates the position of the mechanical origin using the given displacement angle and the contact position of the first positioning member.

Souji et al. teaches the use of a calculator (means used to perform process seen in fig.8) wherein the calculator calculates the position of the mechanical origin using the given displacement angle and the contact position of the first positioning member (6) with the contacting portion.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the robot arm disclosed by JP '967 with the calculating means as taught by Souji et al. in order to provide the predictable result of accurately realigning the robot arm to its origin position after the arm has been displaced without the need of an operator to manually adjust the robot arm.

Regarding claim 14, JP '967 discloses a control unit (see abstract), wherein the joint further includes a driving motor (see fig.2 and 4) for relatively rotating the first member and the second member.

JP '967 fails to explicitly disclose the control unit monitors torque owing to a current of the motor and judges presence or absence of contact of the first positioning member with the contacting portion.

Souji et al. teaches the use of a control unit (means used during process of fig.8) wherein the control unit monitors torque owing to a current of the motor and judges presence or absence of contact of the first positioning member with the contacting portion (the control unit monitors torque by actuating the motor as seen in fig.8 and determines the interaction of the positioning member 6 in order to locate the origin position).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the robot arm disclosed by JP '967 with the control unit as taught by Souji et al. in order to provide the predictable result of accurately and quickly realigning the robot arm to its origin position after the arm has been displaced without the need of an operator to manually adjust the robot arm.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over over JP2002-239967 in view of Miyasaka et al. and further in view of Terzian et al. (USP 3648408), as applied to claim 2 above, and further in view of Gutknecht (USP 4932313).

Regarding claim 3, JP '967 fails to explicitly disclose the first positioning member includes a retainer of a lubricant on a side thereof.

Gutknecht teaches the concept of placing a retainer (38) of a lubricant on a side of a sliding positioning member (31).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the positioning member disclosed by JP '967 to include a retainer of lubricant as taught by Gutknecht for the purpose of facilitating the lubrication of the adjacent wall which the member contacts and preventing the member from scraping said wall thereby increasing the durability of the sliding contact.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP2002-239967 in view of Miyasaka et al. and further in view of Terzian et al. (USP 3648408), as applied to claim 2 above, and further in view of Morawski (DE 29717628 U).

Regarding claim 20, JP '967 in view of Miyasaka et al. teaches wherein the entire first positioning member is contained in the first hole.

JP '967 in view of Miyasaka et al. teaches fails to explicitly disclose the condition that the first positioning member is contained in the first hole when the joint performs a regular action, and the first positioning member is projected from the first hole when the joint performs origin adjustment.

Morawski teaches the concept of using a positioning member (14') which is entirely contained in a first hole (see fig.2) when a joint performs a regular action and

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the positioning member is projected from the first hole when the joint performs origin adjustment.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the robot arm disclosed by JP'967 in view of Miyasaka et al. so that the positioning member would project only during origin adjustment, as taught by Morawski in order to provide the predictable result of simplifying the alignment process by avoiding the need to assemble and disassemble the positioning member to the robot arm.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP2002-239967 in view of Miyasaka et al. and further in view of Terzian et al. (USP 3648408), as applied to claim 2 above, and further in view of Souji et al. (USP 4980839).

Regarding claim 22, JP '967 discloses wherein the first positioning member contacts the contacting portion at a position displaced by a given angle from a position of a mechanical origin of the joint (see figures).

JP '967 fails to disclose a calculator, and wherein the calculator calculates the position of the mechanical origin using the given displacement angle and the contact position of the first positioning member.

Souji et al. teaches the use of a calculator (means used to perform process seen in fig.8) wherein the calculator calculates the position of the mechanical origin using the given displacement angle and the contact position of the first positioning member (6) with the contacting portion.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the robot arm disclosed by JP '967 with the calculating means as taught by Souji et al. in order to provide the predictable result of accurately realigning the robot arm to its origin position after the arm has been displaced without the need of an operator to manually adjust the robot arm.

Response to Arguments

Applicant's arguments with respect to claims 1-5, 9, 11-15 and 20-22, 24, 25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art contains similar robot arms which include similar methods of origin adjustment.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS DIAZ whose telephone number is (571)270-5461. The examiner can normally be reached on Monday-Friday 7:30am to 4:00pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571)272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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